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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/879,452	06/12/2001	Dimitrios Papadimitriou	50001.2059	3538

27045 7590 05/20/2005

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EXAMINER

PEACHES, RANDY

ART UNIT	PAPER NUMBER
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2686

DATE MAILED: 05/20/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

Application No.

09/879,452

Applicant(s)

PAPADIMITRIOU ET AL.

Examiner

Randy Peaches

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 08 November 2004.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-12 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-12 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_

## DETAILED ACTION

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

1. ***Claims 1-3 and 5-6*** are rejected under 35 U.S.C. 103(a) as being unpatentable over Onoe et al (U.S. Patent Number 5,361,396) in view of Ernam et al (U.S. Patent Number 6,148,201).

Regarding ***claim 1***, Onoe et al discloses a mobile communication network, which reads on claimed "wireless network", providing global paging of mobile stations (115) service by the network comprising:

- a plurality of mobile control centers (101), which reads on claimed "pool of mobile switching centers", for servicing mobile stations (115) within a specified service area of said mobile communication system. See FIGURE 2, columns 4 and 6 lines 11-18 lines 45-47 respectfully; and
- a Home Memory Station (HMS, 102) or Home Location Register (HLR, 102), which reads on claimed "radio configuration database", defining a plurality of groups (A<sub>i</sub>, B<sub>i</sub>), which reads on claimed "global paging areas", within said specified service area, the said groups having a hierarchical structure

comprising: (see column 2 and 3 lines 3-46 lines 17-34, and FIGURE 2 respectfully;

- a plurality of location areas ( $A_{1,2,3}$   $B_{1,2,3}$   $C_{1,2,3}$ ), each of which having a plurality of radio zones with a specific base station. See column 3 lines 30-34;

However, Onoe et al. fails to clearly detail the occurrence of Base Station Controllers communicating with a said pool of MSC.

Ernam et al. teaches in FIGURE 1 wherein a hierarchical structure of MSC's, BSC's and BS's are arranged, in that, the said MSC is able to communicate with a pool of said BSC's via a mediator (DS).

Therefore, at the time of the invention it would have been obvious to a person of ordinary skilled in the art to modify the teachings Onoe et al (U.S. Patent Number 5,361,396) to include Ernam et al (U.S. Patent Number 6,148,201) in order to provide a hierarchical communication structure wherein the said pool of MSC's are able to communicate with the said BSC's via a said mediator (DS).

Regarding **claim 2**, as the above combination of Onoe et al (U.S. Patent Number 5,361,396) and Ernam et al (U.S. Patent Number 6,148,201) are made, the combination according to **claim 1**, Onoe et al discloses defining a plurality of global paging areas further comprises a means for geographically grouping the cell in each said service area. See FIGURE 1.

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Regarding **claim 3**, as the above combination of Onoe et al (U.S. Patent Number 5,361,396) and Ernam et al (U.S. Patent Number 6,148,201) are made, the combination according to **claim 1**, Onoe et al discloses a means for paging a said MS that is registered in a cell with the network. See Onoe et al. column 6 lines 25-40 and column 5 lines 30-43.

Regarding **claim 5**, as the above combination of Onoe et al (U.S. Patent Number 5,361,396) and Ernam et al (U.S. Patent Number 6,148,201) are made, the combination according to **claim 1**,

- Onoe et al discloses as said mobile communication network wherein said HMS (102) includes a first field for storing the zone's location code, as represented in FIGURE 5 and taught in column 4 lines 11-30, which reads on claimed "cell identity of cells" within said specified service area.
- Onoe et al discloses as said mobile communication network wherein said HMS (102) includes a second field for storing the said location registration area ( $A_{1-3}$ ,  $B_{1-3}$ ,  $C_{1-3}$ ) or group within said specified service area. See FIGURE 5 column 4 lines 11-30.
- Onoe et al teaches of a fourth field containing the paging zones, which reads on claimed "global paging area."

However, Onoe et al. fails to disclose wherein the network routing circuitry which stores the location/identity of the said BSC currently serving a mobile unit.

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Ernam et al discloses in column 1, 4, and 9 lines 54-56 lines 32-37 lines 20-27 respectively, of a base station controller (BSC 110, 112, 114) being included in the network routing circuitry which stores the location/identity of the said BSC currently serving a mobile unit.

Therefore, at the time of the invention it would have been obvious to a person of ordinary skilled in the art to modify the teachings Onoe et al (U.S. Patent Number 5,361,396) to include Ernam et al (U.S. Patent Number 6,148,201) in order to provide a hierarchical communication structure wherein the said pool of MSC's are able to communicate with the said BSC's via a said mediator (DS) to page a respected MS in the MS's present location.

Regarding **claim 6**, as the above combination of Onoe et al (U.S. Patent Number 5,361,396) and Ernam et al (U.S. Patent Number 6,148,201) are made, the combination according to **claim 5**, Onoe et al. teaches wherein any said Mobile Control Center (101) in said plurality, which reads on claimed "pool", is capable of paging a mobile station within said specified service area by accessing a said HMS (102) and determining the zone's location code, which reads on claimed "cell identity", location registration area, and said BSC identity of a mobile station roaming within said specified service area. See Onoe et al column 6 lines 18-47.

2. **Claims 4 and 7-10** are rejected under 35 U.S.C. 103(a) as being unpatentable over Onoe et al (U.S. Patent Number 5,361,396) in view of Ernam et al (U.S. Patent Number 6,148,201) in further view of Kim et al (U.S. Patent Number 6,343,216).

Regarding **claim 4**, as the above combination of Onoe et al (U.S. Patent Number 5,361,396) and Ernam et al (U.S. Patent Number 6,148,201) are made, the combination according to **claim 3**, Onoe et al discloses a mobile communication network, which reads on claimed "wireless network", providing global paging of mobile stations (115) service by the network comprising:

- a plurality of mobile control centers (101), which reads on claimed "pool of mobile switching centers", for servicing mobile stations (115) within a specified service area of said mobile communication system. See FIGURE 2, columns 4 and 6 lines 11-18 lines 45-47 respectfully; and
- a Home Memory Station (HMS, 102) or Home Location Register (HLR, 102), which reads on claimed "radio configuration database", defining a plurality of groups ( $A_i$ ,  $B_i$ ), which reads on claimed "global paging areas", within said specified service area, the said groups having a hierarchical structure comprising: (see column 2 and 3 lines 3-46 lines 17-34, and FIGURE 2 respectfully;
- a plurality of location areas ( $A_{1,2,3}$   $B_{1,2,3}$   $C_{1,2,3}$ ), each of which having a plurality of radio zones with a specific base station. See column 3 lines 30-34;

However, Onoe et al. fails to clearly detail the occurrence of Base Station Controllers communicating with a said pool of MSC.

Ernam et al. teaches in FIGURE 1 wherein a hierarchical structure of MSC's, BSC's and BS's are arranged, in that, the said MSC is able to communicate with a pool of said BSC's via a mediator (DS).

Therefore, at the time of the invention it would have been obvious to a person of ordinary skilled in the art to modify the teachings Onoe et al (U.S. Patent Number 5,361,396) to include Ernam et al (U.S. Patent Number 6,148,201) in order to provide a hierarchical communication structure wherein the said pool of MSC's are able to communicate with the said BSC's via a said mediator (DS).

However, the combination fails to teach wherein a means for instructing a MSC that handled the registration of the said MS to attempt to page the MS in the location area containing the cell and if the MS does not respond, the MSC attempts a page in the global paging area to the cell belongs.

Kim et al discloses a method of paging a mobile station within a Mobile Communication System, which reads on claimed "wireless network" comprising a plurality, as taught in column 3 lines 25-30, of Mobile Switching Centers (MSC 70a, 70b), the method comprising the steps of:

- transmitting a paging request for a mobile station to the said mobile communication network. See column 6 lines 30-33;



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- the said MSC (70a, 70b) in which the sending of a paging request to the corresponding base station of the paged said mobile station. See column 6 line 48-40 lines 53-56 respectively;
- responding to the paging request if an answer is received from the mobile station. See column 8 lines 15-35;
- broad paging, which reads on claimed "globally paging", the said mobile station if no answer is receive from the mobile station. See column 7 lines 24-27.

Therefore, at the time of the invention it would have been obvious to a person of ordinary skilled in the art to modify the combined teachings Onoe et al (U.S. Patent Number 5,361,396) and Ernam et al (U.S. Patent Number 6,148,201) in view of Kim et al (U.S. Patent Number 6,343,216) in order to provide a means to functionally page a said MS globally when a response is not received when page in a respected cell.

Regarding **claim 7**, Onoe et al discloses a mobile communication network, which reads on claimed "wireless network", providing global paging of mobile stations (115) service by the network comprising:

- a plurality of mobile control centers (101), which reads on claimed "pool of mobile switching centers", for servicing mobile stations (115) within a specified service area of said mobile communication system. See FIGURE 2, columns 4 and 6 lines 11-18 lines 45-47 respectfully; and
- a Home Memory Station (HMS, 102) or Home Location Register (HLR, 102), which reads on claimed "radio configuration database", defining a plurality of

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groups ( $A_i$ ,  $B_i$ ), which reads on claimed "global paging areas", within said specified service area, the said groups having a hierarchical structure comprising: (see column 2 and 3 lines 3-46 lines 17-34, and FIGURE 2 respectfully;

- a plurality of location areas ( $A_{1,2,3}$   $B_{1,2,3}$   $C_{1,2,3}$ ), each of which having a plurality of radio zones with a specific base station. See column 3 lines 30-34;

However, Onoe et al. fails to clearly detail the occurrence of Base Station Controllers communicating with a said pool of MSC.

Ernam et al. teaches in FIGURE 1 wherein a hierarchical structure of MSC's, BSC's and BS's are arranged, in that, the said MSC is able to communicate with a pool of said BSC's via a mediator (DS).

Therefore, at the time of the invention it would have been obvious to a person of ordinary skilled in the art to modify the teachings Onoe et al (U.S. Patent Number 5,361,396) to include Ernam et al (U.S. Patent Number 6,148,201) in order to provide a hierarchical communication structure wherein the said pool of MSC's are able to communicate with the said BSC's via a said mediator (DS).

However, the combination fails to teach wherein transmitting a paging request for a mobile to the wireless network and a MSC first paging the said mobile station in a first cell in which the mobile station is registered wherein the first cell is associated with a location area. Kim et al discloses a method of paging a mobile station within a Mobile Communication System, which reads on claimed "wireless network" comprising a

plurality, as taught in column 3 lines 25-30, of Mobile Switching Centers (MSC 70a, 70b), the method comprising the steps of:

- transmitting a paging request for a mobile station to the said mobile communication network. See column 6 lines 30-33;
- the said MSC (70a, 70b) in which the sending of a paging request to the corresponding base station of the paged said mobile station. See column 6 line 48-40 lines 53-56 respectively;
- responding to the paging request if an answer is received from the mobile station. See column 8 lines 15-35;
- broad paging, which reads on claimed "globally paging", the said mobile station if no answer is receive from the mobile station. See column 7 lines 24-27.

Therefore, at the time of the invention it would have been obvious to a person of ordinary skilled in the art to modify the combined teachings Onoe et al (U.S. Patent Number 5,361,396) and Ernam et al (U.S. Patent Number 6,148,201) in view of Kim et al (U.S. Patent Number 6,343,216) in order to provide a means to functionally page a said MS globally when a response is not received when page in a respected cell.

Regarding **claim 8**, as the above combination of Onoe et al (U.S. Patent Number 5,361,396), Ernam et al (U.S. Patent Number 6,148,201) and Kim et al (U.S. Patent Number 6,343,216) are made, the combination according to **claim 7**, Kim further teaches wherein the said broad paging step further comprises the step of accessing the

Home Location Register (HLR, 80) to obtain the most recent information for the said mobile station. See column 3 lines 34-41.

Therefore, at the time of the invention it would have been obvious to a person of ordinary skilled in the art to modify the combined teachings Onoe et al (U.S. Patent Number 5,361,396) and Ernam et al (U.S. Patent Number 6,148,201) in view of Kim et al (U.S. Patent Number 6,343,216) in order to provide a means to functionally page a said MS globally when a response is not received when page in a respected cell.

Regarding **claim 9**, as the above combination of Onoe et al (U.S. Patent Number 5,361,396), Ernam et al (U.S. Patent Number 6,148,201) and Kim et al (U.S. Patent Number 6,343,216) are made, the combination according to **claim 8**, Kim further teaches wherein:

- finding the paging area (PA<sub>1</sub>, PA<sub>2</sub>), which reads on claimed "location area", in which the said mobile station was most recently present;
- determining which said paging area (PA<sub>1</sub>, PA<sub>2</sub>) the said MSC (70a, 70b) belongs; and
- paging the said mobile station within said broad paging area. See FIGURE 11, column 7 lines 18-27.

Therefore, at the time of the invention it would have been obvious to a person of ordinary skilled in the art to modify the combined teachings Onoe et al (U.S. Patent Number 5,361,396) and Ernam et al (U.S. Patent Number 6,148,201) in view of Kim et

al (U.S. Patent Number 6,343,216) in order to provide a means to functionally page a said MS globally when a response is not received when page in a respected cell.

Regarding **claim 10**, as the above combination of Onoe et al (U.S. Patent Number 5,361,396), Ernam et al (U.S. Patent Number 6,148,201) and Kim et al (U.S. Patent Number 6,343,216) are made, the combination according to **claim 9**, Kim further teaches wherein the said paging step is performed by the said mobile station in all paging areas within said broad paging area. See column 7 lines 25-27.

Therefore, at the time of the invention it would have been obvious to a person of ordinary skilled in the art to modify the combined teachings Onoe et al (U.S. Patent Number 5,361,396) and Ernam et al (U.S. Patent Number 6,148,201) in view of Kim et al (U.S. Patent Number 6,343,216) in order to provide a means to functionally page a said MS globally when a response is not received when page in a respected cell.

3. **Claims 11 and 12** are rejected under 35 U.S.C. 103(a) as being unpatentable over Onoe et al (U.S. Patent Number 5,361,396) in view of Ernam et al (U.S. Patent Number 6,148,201) in further view of Kim et al (U.S. Patent Number 6,343,216) in further view of Hanson (U.S. Patent Number 6,035,203).

Regarding **claim 11**, Onoe et al discloses a mobile communication network, which reads on claimed "wireless network", providing global paging of mobile stations (115) service by the network comprising:

- a plurality of mobile control centers (101), which reads on claimed "pool of mobile switching centers", for servicing mobile stations (115) within a specified service area of said mobile communication system. See FIGURE 2, columns 4 and 6 lines 11-18 lines 45-47 respectfully; and
- a Home Memory Station (HMS, 102) or Home Location Register (HLR, 102), which reads on claimed "radio configuration database", defining a plurality of groups ( $A_i$ ,  $B_i$ ), which reads on claimed "global paging areas", within said specified service area, the said groups having a hierarchical structure comprising: (see column 2 and 3 lines 3-46 lines 17-34, and FIGURE 2 respectfully;
- a plurality of location areas ( $A_{1,2,3}$   $B_{1,2,3}$   $C_{1,2,3}$ ), each of which having a plurality of radio zones with a specific base station. See column 3 lines 30-34;

However, Onoe et al. fails to clearly detail the occurrence of Base Station Controllers communicating with a said pool of MSC.

Ernam et al. teaches in FIGURE 1 wherein a hierarchical structure of MSC's, BSC's and BS's are arranged, in that, the said MSC is able to communicate with a pool of said BSC's via a mediator (DS).

Therefore, at the time of the invention it would have been obvious to a person of ordinary skilled in the art to modify the teachings Onoe et al (U.S. Patent Number 5,361,396) to include Ernam et al (U.S. Patent Number 6,148,201) in order to provide a hierarchical communication structure wherein the said pool of MSC's are able to communicate with the said BSC's via a said mediator (DS).

However, the combination fails to teach wherein transmitting a paging request for a mobile to the wireless network and a MSC first paging the said mobile station in a first cell in which the mobile station is registered wherein the first cell is associated with a location area. Kim et al discloses a method of paging a mobile station within a Mobile Communication System, which reads on claimed "wireless network" comprising a plurality, as taught in column 3 lines 25-30, of Mobile Switching Centers (MSC 70a, 70b), the method comprising the steps of:

- transmitting a paging request for a mobile station to the said mobile communication network. See column 6 lines 30-33;
- the said MSC (70a, 70b) in which the sending of a paging request to the corresponding base station of the paged said mobile station. See column 6 line 48-40 lines 53-56 respectively;
- responding to the paging request if an answer is received from the mobile station. See column 8 lines 15-35;
- broad paging, which reads on claimed "globally paging", the said mobile station if no answer is receive from the mobile station. See column 7 lines 24-27.

Therefore, at the time of the invention it would have been obvious to a person of ordinary skilled in the art to modify the combined teachings Onoe et al (U.S. Patent Number 5,361,396) and Ernam et al (U.S. Patent Number 6,148,201) in view of Kim et al (U.S. Patent Number 6,343,216) in order to provide a means to functionally page a said MS globally when a response is not received when page in a respected cell.

However, the combination of Onoe et al (U.S. Patent Number 5,361,396), Ernam et al (U.S. Patent Number 6,148,201) and Kim et al (U.S. Patent Number 6,343,216) fails to clearly detail globally paging a mobile station where the said mobile station was last known to be roaming.

Hanson teaches in column 3 and 4 lines 24-35 lines 11-21 respectively, of a processing and database node (CDN, 30) that includes a data table that maintains a record of the most recent location, which reads on claimed "last known location", of a said mobile station.

Therefore, at the time of the invention it would have been obvious to a person of ordinary skilled in the art to modify the combined teachings of teachings Onoe et al (U.S. Patent Number 5,361,396) and Ernam et al (U.S. Patent Number 6,148,201) in view of Kim et al (U.S. Patent Number 6,343,216) to further included Hanson (U.S. Patent Number 6,035,203) in order to establish a database accessible by the said mobile communication network to determine the most recent location of the said mobile station to execute an effective paging process of the said mobile station in a defined paging area.

Regarding **claim 12**, as the above combination of Onoe et al (U.S. Patent Number 5,361,396), Ernam et al (U.S. Patent Number 6,148,201), Kim et al (U.S. Patent Number 6,343,216) and Hanson (U.S. Patent Number 6,035,203) are made, the combination according to **claim 11**, further comprises the step, as taught by Hanson in



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column 4 lines 23-45, of paging in said last said last known flood paging area, which reads on claimed "global paging area".

Therefore, at the time of the invention it would have been obvious to a person of ordinary skilled in the art to modify the combined teachings of teachings Onoe et al (U.S. Patent Number 5,361,396) and Ernam et al (U.S. Patent Number 6,148,201) in view of Kim et al (U.S. Patent Number 6,343,216) to further included Hanson (U.S. Patent Number 6,035,203) in order to establish a database accessible by the said mobile communication network to determine the most recent location of the said mobile station to execute an effective paging process of the said mobile station in a defined paging area.

### ***Response to Arguments***

Applicant's arguments with respect to claims 1-12 have been considered but are moot in view of the new ground(s) of rejection.

Regarding claims 1-12, per the above rejection, the arguments are moot in view of the new rejection based on the Applicant's amendment.

### ***Conclusion***

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Randy Peaches whose telephone number is (571) 272-7914. The examiner can normally be reached on Monday - Friday.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Marsha D. Banks-Harold can be reached on (571) 272-7905. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Randy Peaches  
May 16, 2005

*Marsha D. Banks-Harold*  
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